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THE

TREATMENT

OF

SKIN CANCERS.

BY

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PUBLISHED BY

INTERNATIONAL JOURNAL OF SURGERY CO.,

100 WILLIAM STREET, NEW YORK.

J. MACDONALD, JR., SEC'Y AND GEN'L MGR.

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Dr. W. F. Grimes.

PREFACE.

THE demand for a second edition of "THE TREATMENT OF SKIN CANCERS" is a gratifying proof of appreciation of my attempt to place the dermatological aspects of the question before the profession in a practical and useful way.

In the following pages I have endeavored to give a succinct account of the cancerous process as it affects the external integument of the body. The modern theories of its nature, causation, and pathology have been briefly dwelled upon; but especial stress has been laid upon the two points which are after all the only essential ones for us, its recognition and treatment. Whilst none of the important therapeutic measures that are employed are neglected, I have elaborated more especially the caustic method, which is the one that experience has commended to me. It is my hope that what I have written may do something towards taking this most eligible method of treating cutaneous carcinomata out of the hands of unauthorized practitioners, and placing it where it belongs, at the disposal of the profession at large.

W. S. G.

CANCER OF THE SKIN.

CHAPTER I.

Carcinoma is one of the most frequent of the new growths, and one of the most interesting. Its common occurrence necessarily brings it within the field of every practitioner of medicine, its malignancy partly justifies the popular horror at its name. The problems of its etiology, still unsolved, form a fascinating field for the scientific pathologist. Its appropriate treatment is a subject upon which opinions differ widely, and for which definite rules are hard to formulate. The general integument offers a specially favorable field for the study of this, as of so many other obscure affections. No where else in the body do we find so extensive an organ spread out in a thin layer, and accessible to our eyesight and our touch. No where else is it so readily possible to call in the aid of instruments of precision; no where else can we during life so readily apply the microscopic touchstone that has revealed so much to us. The majority of carcinomata proceed primarily either from the body surfaces covered with pavement epithelium, the skin and the mucous membranes, or from secreting glands that open on to the surfaces. In the skin, if anywhere, carcinoma can be studied to advantage.

I need say but little of the importance of such study. We are in the peculiarly favorable position in

regard to the skin, that we are able to appreciate the malignant new-growths at a time so early, and in a stage so little advanced, that the chances of successful treatment are much greater than when they are hidden away in the interior of the body. Their beginnings are slow and insidious. They may commence in apparently normal skin; but often they originate in abnormal structures that are innocent and almost unnoticed. Only too frequently they grow from a wart that has been present for many years, a wen or a nævus that has been carried so long that it has become a part of its owner's personality, a syphilitic scar that remains to remind its bearer of the vicissitudes of his youth, or a lupoid cicatrix that marks the site of a long extinct process. The recognition of the transition from innocent to malignant growth, from homologous to heterologous hyperplasia, is usually not difficult; the sign manual of cancer is plain to the experienced eye. The destruction of the cancerous growth at this stage is comparatively easy. Left to itself, as it too frequently is, it grows beyond our control and continues its fatal progress unchecked by our therapeutic efforts.

The following, to my mind, are the important points in the consideration of carcinoma as affecting the skin. In the first place a due appreciation of its starting points, of the lesions that not infrequently develop into it, of the harmless tumors that are liable to take on a cancerous growth. In what I may term the cancerous period of life these should always be carefully watched as soon as they show the slightest

deviation from their normal quiescent condition. The obstinate fissure that will not close; the excoriation that will not heal; the senile wart that becomes irritated; the nævus that bleeds repeatedly; the scar that becomes hypertrophic; all these are suspicious conditions in the patient who has passed the meridian of life.

In the second place, a knowledge of the appearance of the new-growth in its very earliest stages. The importance of this knowledge, from a practical point of view, can hardly be over-estimated. The prognosis of the disease depends largely upon the stage at which it is diagnosed. A well developed case is readily recognized, but often difficult or impossible to cure. Exactly the reverse is true of one at its very beginning.

And thirdly, the most approved methods of treatment. And here the dermatologist stands on somewhat different ground from the general surgeon, and sometimes advocates methods that might not commend themselves to him. Nevertheless, his treatment stands the test of experience, and there are definite pathological reasons for its success. Some cases of cancer are, of course, best treated by strictly surgical measures. But a very large proportion of the new-growths of this nature with which the dermatologist has to deal are better handled in other and non-operative ways. A fairly extensive experience, and the observation of a number of cases for years after their cure, enable encourages me to speak with emphasis.

I shall have but little to say upon the pathology of cancer. Much has been written about it, but little is positively known. Moreover, the subject is too ex-

tensive a one for the limits of these papers, and it belongs rather to the domain of general pathology,

Whilst all the varities of carcinoma occur in the skin, some of them are of such rare occurrence as to be dermatological curiosities, and will receive but brief consideration. Others are peculiar to the skin, and are the common forms in which the disease occurs in that organ. With these we shall more specially have to deal.

Fifty years ago all malignant tumors were called cancers; the terms were interchangeable, and much confusion was thereby caused. Some writers even of recent times use the term in this sense; it may be convenient from a clinical standpoint, but it cannot be countenanced in the light of our present knowledge. Our ideas have become clarified, and we now differentiate sharply between the carcinomata and other malignant neoplasms. The true cancer is always an epithelial new-growth, though it always contains some, and sometimes of a large amount of common connective tissue. It is an atypical epithelial neoplasm, in which the new cells are not arranged in the ordinary manner, and do not grow in the usual way that is characteristic of the epithelial tissues, but are grouped in masses, nests or columns. These masses of new cells have an independent growth, and cause the destruction of the normal elements of the tissues among which they develop. They are contained in a stroma more or less abundant, composed of fibrillated connective tissue arranged in an alveolar manner. The various clinical and patho*logical varieties* of the disease are occasioned in the

first place by the relative amount of connective tissue stroma to proliferated epithelium. The more of the former that is present the harder the consistency of the tumor, and the slower its rate of growth; the less stroma, the softer the tumor and the more rapid its development. The next factor is the condition of the epithelium itself. This is subject to various degenerative processes that modify the appearance and the course of the growth. Finally, the accidents of location are of influence. Carcinomata have different courses, different prognoses, and different treatments, in accordance whether they develop from the skin, from the mucous membranes, from the points at which these two tissues merge into one another, or from the internal organs of the body.

CHAPTER II.

THE CAUSE OF CANCER.

If deep thought, painstaking investigation, and skillful experimentation would necessarily lead to definite results, we should have a better knowledge than we possess of the cause of cancer. We must frankly confess that the subject is still entirely wrapped in darkness. Nevertheless, clinical experience and scientific research have, in the course of time, put us in possession of a number of facts bearing upon the mode of origin of these growths; and they stand uncontroverted, although no common and plausible theory can be framed to account for them all. Many investigators have advocated theories based upon one or more of them; and arguments more or less weighty, and observations more or less cogent, can be cited in support of all of them. It will be useful to pass them briefly in review.

1. *Senility.*—There can be no possible doubt that the changes that occur in the integument as old age comes on, predispose it, in a general way, to the occurrence of cancer. Not only does the disease occur mostly in old individuals, or in those who, though young in years, show evidences of senile changes in the skin and other tissues. A large proportion, classed *as high as ten per* cent. by some authorities, of all

those who attain the senile age, die of one or the other varieties of carcinomatous disease. Senile warts, pigmentations, and excrescences are frequently the starting points of cutaneous cancer. But the relationship between these hypertrophic changes and the development of the carcinomatous growths is entirely unknown.

2. *Heredity.*—This is one of the oldest of theories regarding the etiology of cancer, and is supported by a not unimposing array of facts. At the time when the heredity of consumption was implicitly believed in, it was noted that next to that disease, cancer had most frequently a hereditary history, though the tendency to its appearance increased with the advancing age of the patient. Life insurance companies charged an additional premium if two or more members of a family had died of the disease; and if, in addition, the applicant was over fifty years of age, de Havilland Hall recommends that he should be rejected entirely. It cannot be doubted that cancer occurs more frequently in families in which it has once made its appearance than in others; but whether this is due to heredity, properly so called, or to other factors that are liable to influence persons occupying the same dwelling and living under the same conditions, such as direct contagion, etc., we are unable to say.

3. *Locality.*—This theory as to the cause of cancer, has been held by some authorities. D'Arcy Power and Wells have collected a series of cases in which several deaths from carcinoma have occurred in a comparatively short time in the same house. In one

of them three persons who occupied the same bedroom in succession, died of cancer in nine years. Shattock has noted a house in which four persons died of cancer in fourteen years. Several similar cases, without there being any blood relationship between the sufferers, have been recorded, and maps of cancer houses and cancer areas have been made. The same facts have even been recorded in animals; thus Cooper reports three cases of cancer of the tongue in a herd of cows pastured on a piece of land near Chatham. There is no reason to doubt the correctness of these observations, but they are much more readily explained on the supposition of a persistent local infecting cause.

4. *Climate, Soil, General Hygienic Conditions and Drugs.*—Some statistics seem to show that cancer is more prevalent in damp, clayey soils; but others again tend to show almost the reverse. In a general way bad hygienic conditions seem to favor its spread. This is not surprising, since whatever lowers the resisting powers of the tissue cells increases their liability to degenerative changes and to injury from external causes. Hutchinson is responsible for the observation that the habitual ingestion of arsenic increases the liability to cutaneous cancer, and he does not think this surprising, since when administered for a long time, as in psoriasis, it causes reddening and irritation of the affected patches.

5. *Inclusion.*—First suggested by Cohnheim, this theory was for years a favorite one. The idea that *certain* cells remained in their embryonal condition

until late in life and then, when stimulated into activity, exhibited a peculiar vitality and an embryonic mode of growth, was one that appealed to the pathologist; but it remained a pathological theory and was in no real sense an answer to the question as to the etiology of the disease.

6. *Irritation.*—This theory as to the origin of cancer is supported by many facts of common observation. Traumatisms are undoubtedly influential in many cases of carcinoma. It appears on the lower lip at the point pressed upon by the pipe in smokers; on the scrotum in uncleanly and soot-begrimed chimney-sweeps; in lacerations of the cervix uteri. It begins in warts of all kinds—in nævi, pigmentary and vascular—that have been scratched and irritated; and in syphilitic and lupoid ulcerations and scars under similar conditions. So well recognized is this fact, that all such structures in persons of cancerous age must be carefully watched when they show any tendency to irritation or ulceration. Nevertheless, it may be effectively urged that the irritated lesion is only the entrance gate through which the infective agent reaches the tissues.

7. *An Organic Cause.*—Foa first described certain parasitic bodies consisting of a soft protoplasmic body inclosed, with a small nucleus, in a double capsule, as the organism of cancer. He found them in many carcinomatous masses and secondary nodules, but not in the degenerative areas. Plimmer found similar bodies in 400 cases of cancer examined at the Cancer Hospital, and did not find them in other new-growths,

such as fibromata, papillomata, gummata, etc. Korotnoff, Clarke, Wickham, and others have found these bodies. Adamkiewicz has found protozoa, which he called sarkolytes. Most investigators, however, regard these bodies as degeneration products, or as appearances artificially caused by the staining and hardening agents used. Cultures and inoculations have so far entirely failed. The case, as regards their etiological relationship to cancer, is as yet entirely unproven.

It is very evident, therefore, that we possess no certain knowledge as to the cause of cancer. We know that it is prone to occur in senile tissues; that cases are more likely to appear in families and in localities where it has been present before; that bad hygienic conditions favor its development, and that innocent epithelial growths and tissues are very liable, under the influence of irritants, to be the starting-point of its growth. All these facts point more or less directly to the existence of an organic, living cause; and, although none such has, as yet, been demonstrated, the indications are that it will ultimately be found.

CHAPTER III.

The Pathology of Cancer.

Cancer is essentially an atypical new-growth of the epithelial tissues. Perhaps it is more correctly called an overgrowth, for it always originates from pre-existent epithelial tissue. This epithelium is either of the pavement variety, such as is found on the free surfaces of the body, or of the cylindrical and glandular kind, which occurs in the internal organs. It is with cancerous overgrowth of the former variety only that we are here concerned.

In carcinoma beginning in the pavement epithelium the new growth of epithelial cells commences in the deeper layers of the rete. The interpapillary processes grow irregularly, spreading upwards, downwards, and laterally, and finally penetrate into tissues in which no epithelial cells are found under normal circumstances. The cells are arranged in masses contained in connective tissue alveoli; and to the relative amounts of cell and stroma substance, together with the various secondary inflammatory and degenerative changes to which they are subject, the different clinical and pathological varieties of the disease are due.

The typical cancer of the skin begins as a nodule

or a nodular infiltration. It forms a hard, cartilage-like tumor, sections of which in the very early stages have a rosy red hue, changing later to a dark red or greyish. Their succulence varies with the relative amounts of soft cell substance and harder stroma present; but a greater or less amount of greyish or yellowish white fluid can be scraped from the cut surface, in which will be found a number of reddish white or whitish lumps, the dislodged cell masses.

The first change noted in the simplest form of superficial cancer is an increase in the number of the epithelial cells of the interpapillary parts of the rete; the rete processes are prolonged and enlarged at their ends. This increase causes more or less compression of the cells; hence, whilst the peripheral layers of cells of the hypertrophied processes are cylindrical, the central layers are cubic, rhomboid, or flattened. Many of the cells have nuclei and nucleoli, and occasional vacuoles are present.

The direction of the enlargement of the epithelial masses depends greatly upon the mechanical conditions that are present in the tissue affected. The very first increase is downwards towards the cutis; but, if hindered in that direction, the growth is upwards or lateral. Thus we get great masses of flattened epithelium with branches penetrating the corium in all directions forming the tubular variety. In other cases the hypertrophied interpapillary processes rise above the surface of the skin and form papillary excrescences. The heaped up epidermoidal cells preserve their cohesion to a very great extent, and they then

form the papillary variety of the disease. The epithelial masses do not penetrate the corium until late; they accumulate upon the surface, and the necrobiotic changes that inevitably occur appear there first.

The deeper forms of cancer of the skin are due to the invasion of the deeper layers of the corium and the subcutis by the epithelial new-growth. The cell masses are larger in size, penetrate deeper, and are more dendritic. They enter into and grow in the lymphatic spaces of the connective tissue, invade the larger lymph channels, and reach the lymphatic glands. Finally, the tissues under the subcutis, the muscles, nerves, and even the bones may be involved.

In whichever direction the epithelial growth occurs, it presents under the microscope certain characteristic appearances. The epithelial cells are pressed together into compact masses more or less circular or oval in shape, depending upon the angle at which the process is cut by the section knife. The central cells in the masses undergo a horny transformation, whilst the outer ones are arranged in concentric lamina and flattened. These are the cell nests, epithelial pearls, or cancroid bodies, once supposed to be characteristic of this form of tumor. Such is not the case, however, as they are found in certain situations and in certain sections of normal skin, and they are only of importance when found in connection with the other characteristic arrangements of carcinoma. The epithelial cells are grouped entirely alone, and are not intermixed with the connective tissue elements, as in sarcoma.

The cell nests and columns are bounded by a stroma of connective tissue in which run the vessels and lymphatics that supply the tissue. This stroma varies greatly in amount and consistency in the various cases. In the harder varieties of cancer it is dense and abundant, the cell nests are few and far between, and contain but few and possibly degenerated cells. In the softest varieties the nests are abundant, the cells numerous, and the connective tissue stroma small in amount.

The presence of the invading processes and columns of epithelium in tissues to which this variety of cell is foreign, causes inflammatory reaction, suppuration, ulceration, etc. Small-celled infiltration, in the deeper tissues, and ulceration when the more superficial ones are involved, occur sooner or later. These secondary changes are responsible for some of the clinical varieties of the disease. Atrophic and degenerative changes also occur in the mass of new epithelial cells and in the stroma. Fatty degeneration is the commonest, but mucoid and pigmentary degeneration, calcification, and ossification, also occur. All these changes appear first in the center of the cell mass, where the nutritive conditions are poorest. Hence the center of the growth may be in a condition of fatty degeneration, or ulceration, whilst the epithelial proliferation is still progressing at the margins.

To sum up the matter, the process in carcinoma of the skin consists of an abnormal proliferation of epithelium growing into the deeper tissues or projecting outwards, with the inflammatory and degenerative *sequelæ* therefrom.

CHAPTER IV.

The Forms of Cancer of the Skin.

Cancer of the skin appears in several different forms, and may, as has been said, occur as a primary affection, or develop secondarily to cancer of other organs. The following chief varieties are to be noted:

1. *Carcinoma cutis, or true cancer of the skin,* is the rarest of these forms, and is always of the schirrhus variety of the tumor. The growths formerly described as melanotic carcinoma, are really sarcomas. It sometimes occurs as a primary and generalized affection, but is more commonly secondary to cancer of the female breast or of the alimentary canal. A lenticular and a tuberose form are distinguished.

Carcinoma lenticulare appears as various-sized, hard, smooth, flat or raised nodules. The tumors are usually multiple and sometimes very numerous. Their color is a dull brown or reddish. At first they are discrete, but as they grow and increase in size, they coalesce into larger tuberous masses. Finally, they form large plates of irregularly indurated and thickened skin which, on the chest and trunk, forms a dense leathery envelope which impedes respiration (cancer en cuirasse). The lymphatic glands enlarge, and the lymphatic flow is interfered with. As the masses increase in size, the vascular supply is also in-

terfered with by the connective tissue new-growth, softening and ulceration occur, and the ulcerated surface is not infrequently covered with masses of dark-red, easily-bleeding fungating tissue. Death occurs finally from wasting or from metastatic deposits in the internal organs.

The tuberose variety is rarer, and may also be primary or secondary. Here the hard, cancerous deposits appear as circumscribed, flat or elevated, rounded tubercles, pea to egg-sized, and usually deeply seated in the skin. The nodules are larger than in the lenticular form; their color is a dull brown or reddish or violaceous; and they are sometimes very numerous, and scattered over the surface of the body. Breaking down and ulceration finally occur, and deep fungating ulcers appear.

There is no essential difference between the two forms of schirrhus of the skin in their termination; death occurs finally from wasting or from metastatic deposits in the internal organs.

The other and commoner varieties of cancer of the skin are more superficial and less rapidly fatal, and are known under the general name of epitheliomata. Of these the first to be considered is the

2. *Superficial or discoid epithelioma, cancroid or rodent ulcer.*—(Fig. 4.) This is the most frequent form of skin cancer, and is the least troublesome. It may last for many years without inconveniencing the patient much. It begins as one or more insignificant-looking minute papules, of a reddish or yellowish color, and of a peculiar dirty, pinkish, waxy appearance, with a

glance like that of mother of pearl. Usually a single papule only is present; but there may be several of them, either grouped or scattered. Sometimes they grow upon an ordinary or a senile wart, a sebaceous cyst, the scars left by lupoid or syphilitic disease, or a chronic fissure or excoriation. The papule gradually enlarges, and finally an excoriation appears in its middle covered by a small scale or crust. Removal of this scale reveals the presence of a flat superficial ulceration covered with granulations or with a scanty, viscid secretion. In its fully developed form the superficial epithelioma appears as a more or less extensive, very shallow, indolent ulceration. Its edges are hard, wall-like and elevated. Its margin is sharply defined, hard, and has the peculiar waxy glance; and minute, red, dilated blood-vessels run irregularly over it. Waxy-looking, hard, and rounded nodules, the cancroid pearls, are not infrequently present near the margins of the ulceration. The seat of this form of malignant disease of the skin is usually at the place where skin and mucosa meet. It is most common upon the lips, alæ nasi, and eyelids, and next most frequent upon the genitals, glans penis, prepuce, etc. Its course is extremely chronic. It may grow slowly for many years, the general health remaining excellent. Then it may cease to grow; but far more commonly, if left to itself, it finally invades the deeper structures, and develops into the infiltrating deep variety, or into the papillary form of the disease.

3. *Deep or tubercular infiltrating epithelioma.*—(Figs. 2 and 3.) This is rarer than the superficial form,

and more rapid in its course. Like it also, it often originates from a wart or nævus. When it does not it appears first as a pinhead to split-pea-sized tubercle set deeply in the skin or subcutis, slowly growing to coin-size or larger. The waxy glance is more or less evident; the surface is delicately vascularized; and the color of the tumor varies from red to purplish. It develops into one or more flat or globular tumors or a thick placque, with steep or everted walls, and a depressed atrophic center. In the course of months ulceration and breaking down begins at the surface or the periphery; the destructive process varies in rapidity, but is less than that of the superficial form. The resultant ulcer is rounded or irregular, and crateriform, and its surface bleeds easily on touch. Its walls are hard, everted, and purplish. Its secretion is scanty, pale yellow and viscid, or thin, purulent and foul smelling. The infiltration around the margin of the ulcer and at its base is always marked. There is more or less pain of a sharp, lancinating nature, at all stages of the disease. The neighboring lymphatic glands enlarge and sometimes break down. Eventually the muscles, fasciæ, cartilages, and even the bones become involved. Death finally occurs from marasmus or exhaustion or hemorrhage, in from a few months to three years. The commonest site of the affection is upon the mucous membranes, more especially upon that of the tongue.

Papillary epithelioma, or malignant papilloma.—(Fig. 1.) This is the most rapidly fatal form of cutaneous epithelioma, and whilst usually only a late stage

of one of the other two forms, may occur as an independent affection. Like the other forms, it may originate in a wart, a scar, a nævus, or in the normal skin. It appears as a raspberry or cauliflower-like, elevated, pedunculated or sessile vegetation. Its shape may be battened and fungiform, cylindrical or pointed. The mass is of a bright, florid color, and is very vascular, bleeding easily. Pain, dull or acute, is usually present. It gradually enlarges to egg-size or larger, and then forms a lobulated, spongy mass, the surface of which may be covered with dried epidermis, and of a dirty whitish-yellow color, or macerated and moist, and bathed in foul viscid or bloody secretion. Deep fissures and excoriations occur, and finally deeper ulceration and breaking down.

Rounded or oval ulcerations, with everted or undermined purplish-red edges, and an irregular base covered with granulations, or with a serous, offensive discharge, or crusted, are thus formed. Under the ulceration, as under and around the original papillary mass, the characteristic hard induration of the cancer is present. The lymphatic glands enlarge, harden, coalesce, and break down. In the course of time the deeper structures, the fasciæ, fat, muscles, and even the bones become involved. The termination of the disease is by death from cachexia or exhaustion. The commonest site for this form of epithelioma is upon the genitals, the glans penis, scrotum and the labia; and it is also frequent upon the mucous membranes.

Finally, there remains to be described the very superficial form of epithelioma known as

5. *Paget's disease of the nipple.*—This occurs upon the nipples of women of from forty to sixty years of age. It resembles an ordinary eczema very greatly, and is known by some writers as eczematoid epitheliomatosis. The entire mamilla and the areola look eczematous, moist and crustaceous, but a careful examination will reveal some characteristic induration of the skin under the affected area. One breast usually is affected; a moderate itching and burning accompany the disease. The physical features resemble those of an ordinary eczema so closely that in some cases its intractibility is its only characteristic features. It finally develops into the deeper and infiltrating varieties of the disease.

CHAPTER V.

The Diagnosis of Cancer of the Skin.

This is certainly the chief point for consideration in the whole subject of cancer as affecting the integument. If it is made early in the course of the disease, the prognosis is in many cases good, and the treatment simple. Not made until late, the prognosis is often bad, and the treatment difficult or useless. A careful consideration of the physical features of skin cancers in their earliest stages, of the structures, pathological, and physiological, from which they are liable to develop, as well as of those other morbid conditions from which they must be differentiated, is of primary importance.

I. The true schirrhus carcinoma of the skin is usually readily recognizable. As has been already mentioned, it is of very rare occurrence save when secondary to carcinoma of other organs, more especially to that of the female breast. It usually occurs, therefore, either in conjunction with advanced cancerous disease of the internal organs, or in the scar left after operative procedures therefor. In either case its recognition cannot be a matter of difficulty. The hard, smooth, glistening nodules or small tubercles, either flat and subcutaneous, or raised and projecting; the dull brownish, reddish, or violacious color; and the

gradual growth and coalescence into larger plates and indurated masses, until finally they form the complete cuirasse, are quite characteristic. When ulceration has occurred, the margins show the features of the original nodules, some of which will be found that have not undergone breaking down. It may be confounded with the nodules of sarcoma. This disease, is, however, of much more rapid evolution, running its entire course in a few months. It appears in early, not late life; there is not such marked tendency to ulceration as in cancer; it does not follow cancer of the internal organs; and it shows a marked tendency to appear in distant as well as in neighboring parts.

II. The superficial epithelioma or rodent ulcer begins as a small painless induration, which very slowly grows into a characteristic ulcer. From the very beginning the nodule shows the distinctive features due to the accumulation of epithelial cell masses in the deeper layers of the cutis. There are the cartilaginous hardness, the waxy appearance, and the dilated, ectasic vessels running over the surface. When ulceration has in time set in, the margins of the loss of tissue show the characters of the original lesion. The ulcer itself may be smooth or granular, dry, moist, or crusted, of a brighter or darker red color. Its edges are narrow and hard bands, somewhat undetermined, or everted, of waxy glance, and marked with dilated vessels. Just outside them may be found the epidermic globes or cancroid pearls, hard, waxy looking, milium-like nodules. The ab-

sence of pain, and of any tendency to spread into the depths of the tissue, with the extreme chronicity of its course and slowness of its growth, will, with the above mentioned features, sufficiently characterize this form of the disease.

Rodent ulcer may be confounded with the slow superficial serpiginous syphiloderm. This latter, however, does not remain as a papule for months and years before breaking down occurs; its course is very much quicker; there is a marginal induration, but not nearly so hard a one as that of cancer; there is no waxy glance; there are usually several points of ulceration; it is most often seen in early adult or middle life; other evidences of lues, past or present, are commonly present; and, in doubtful cases, the effect of treatment will soon settle the diagnosis. The gumma is never so hard and firm as the carcinoma; it soon goes on to softening and fluctuation; and its rapid course and reaction to appropriate treatment will serve to distinguish it.

More important is the differentiation of a beginning epithelioma of this variety from an ordinary wart, more especially as it frequently develops from it. In its very beginning it is a matter of difficulty to decide when a wart, which perhaps has existed harmlessly for decades, is beginning to undergo cancerous degeneration. Usually the first symptoms are those of irritation. The wart becomes painful or itchy; it bleeds upon slight provocation; and finally the characteristic induration begins to appear around its base. The only safe rule is to regard

every wart or excrescence that shows signs of irritation or any departure from its normally quiescent state, with suspicion, more especially when it occurs in a patient advanced in years. Persistence of the symptoms, even without the presence of the characteristic signs of malignant growth, should cause it to be regarded as an epithelioma.

III. The deep or infiltrating epithelioma begins as one or more deep seated split-pea sized tubercles, of characteristically hard consistency. As it grows in size into a globular tumor or a placque, its surface assumes the waxy appearance and the vascularisation before mentioned. The ulceration that finally appears is crateriform, it's base is uneven, reddish or violacious, perhaps granular; its secretion is scanty and viscid; its walls are everted and raised; and the infiltration under and around it is marked. Its growth, though slow, is faster than that of the more superficial form. This form must be differentiated from:

Syphiloderma by the characteristics mentioned above. Its rate of progress is more like that of the latter disease; but the comparative softness of the induration, and its non-vascularisation, together with the age of the patient and the results of treatment, should suffice to prevent mistake. An important differential diagnosis is that from

Lupus vulgaris. Lupus, however, begins in youth, and rarely occurs after the 35th year, whilst epithelioma rarely occurs before it. The elementary lesions are multiple, and more diffuse, and consist of the characteristic, soft, brown, semi-translucent, apple-

jelly papules; and there is no dense, firm, and indurated wall surrounding the ulceration.

Occurring upon the genitals and on the mucous surfaces, the deep seated epithelioma must be distinguished from

Chancre and Gumma.—Chancre occurs as frequently in youth as in old age; has not the stony hardness of carcinomatous disease; is accompanied or followed by other evidences of luetic disease; and reacts to specific treatment. Gumma also runs a comparatively rapid course, and soon breaks down; and here also appropriate treatment soon reveals the nature of the disease. Occurring in the mouth or throat, however, or on a part of the body other than those usually exposed to sexual contagion, and in elderly individuals, the differential diagnosis may be a matter of great difficulty. The difference of hardness is often inappreciable. The characteristics of the ulceration, when situated for instance on the soft palate, are not very characteristic. Two efficient means, however, are at our disposal to make the distinction; first, the results of a vigorous anti-luetic treatment, with the iodide of potassium in very large doses, and, second, the excision of a portion of the growth or ulceration, and its examination under the microscope. The first should be tried in every doubtful case, and its verdict, if negative, confirmed by the second.

IV. Papillary or fungating epithelioma appears as a raspberry or cauliflower-like, vascular, easily bleeding growth, of a bright, florid color. It is usually covered with viscid, foul-smelling secretion, but it

may be dry and yellow on the surface. Fissuring and breaking down generally occur, and the ulceration that results does not differ in its characteristics from that of the deep seated form above described. It is a fairly rapid form of the disease, and is especially apt to occur around the genitals and on the mucosae. It is especially important to differentiate it from the ordinary

Condyloma. This is often a matter of difficulty, especially in the early stages. The age of the patient is of some assistance; but condylomata may occur in advanced years. The appearance of suspicious induration at the base and margins of the growth, the presence of ulceration in any part of the papillary tumor, and the obstinate, though slow extension of the mass, are the main points that enable us to make a diagnosis. These cases are frequently regarded as ordinary venereal warts in their early stages, and their features are obscured when the abundant papillary growth has set in.

V. Paget's disease has only of late years been recognized as a variety of epithelioma, and the name, eczematoid epitheliomatosis, by which it is sometimes known, testifies to the difficulty that is often experienced in distinguishing it from the commonest of skin diseases. It is to be described as a moist, crustaceous, eczematous looking affection of the nipple, with an induration that is very slight. It occurs in elderly women, and is accompanied by moderate burning and itching. It is extremely chronic, lasting for many years before it developes into one of the other *forms of* carcinoma. Its diagnosis from

Eczema is to be made in its earliest stages, by its location, chronicity, and extreme obstinacy and recalcitrance to treatment. A chronic eczematous affection of the nipple occurring in a woman over forty years of age, resisting the ordinary methods of treatment, and showing some amount of induration, is always suspicious.

CHAPTER VI.

The Treatment of Cancer of the skin.

Cancer of the skin, save in its very latest stages, is a purely local disease; and the various constitutional remedies that have been recommended for its treatment, may be dismissed with very few words. They are so numerous that a mere list of their names would include most drugs and many of the mineral waters. Not a single one has stood the test of use by other than its proposer. I shall mention only one of the oldest and two of the most recent. Arsenic has long enjoyed a reputation for usefulness, but at the present day there is only a single authority—Lassar—who claims to have cured carcinomatous ulceration of the skin by its internal administration. His cases are not conclusive, and all other investigators have found that it exerted only its well-known general tonic effect, and had no influence at all upon the local condition. Chelidonium majus has recently been used internally as well as externally by Denissenko. The good results that he apparently obtained at first have not been continued either in his own hands or in those of others. It is not yet decided that chelidonium does not have some deterrent action upon epithelial cell growth; but it is already discredited as a remedy for the disease. Cinnamon, in the form of

large doses of the infusion, has been thoroughly tried by J. W. Hulke on three cases with no results; the cancerous growths increased just as if nothing had been used.

Local treatment, then, is the only one to be seriously considered; and as regards this, professional opinion is divided into two distinct camps. One of these regards carcinomatous disease of the integument from a purely surgical point of view, and believes that removal by ablation or excision is the only reliable mode of treatment. The other advocates the destruction of the new-growth by chemical means, and includes the majority of those exclusively engaged in the treatment of diseases of the skin. The truth, as usual, lies between the two; but not in the middle. In certain selected cases of cancer of the skin the knife is the best, and, in a few, the only method of treatment; but in the great majority of them it is the less successful and the less eligible. And this for the following reasons: Removal by the knife or curette, to be effective, must be complete; and the amount of tissue that must be ablated to make it so, is a matter of judgment in each case. Carcinomatous tumors are not usually coherent, distinctly limited, or encapsulated masses. They are structures of irregular shape, with long arms or projections of epithelial masses into the surrounding and apparently healthy tissue.

Where does the cell infiltration end? Where does the healthy tissue begin? Far beyond the apparent limits of the tumor, the skin may appear perfectly healthy; but in its depths long and sinuous arms or

almost isolated nests of morbid epithelial cells may lurk. Is it any wonder then that the surgeon's judgment should often be at fault; that, however far beyond the affected areas he may cut, some diseased cells may be left behind to serve as a nucleus and a starting point for the new-growth? No one can tell with certainty where cancerous tissue is absent and healthy tissue only is present; and the high percentage of returns after excision is proof thereof.

Then, again, the surgical treatment of cutaneous epitheliomata necessarily involves considerable mutilation. The entire area, or the entire part must be removed, healthy and diseased tissue being necessarily sacrificed together. The knife cannot discriminate between the two.

Finally, from the patient's point of view at least, a cutting operation is a thing to be avoided when possible. And whilst, scientifically, this argument has no weight at all, it is an important factor in deciding the patient to submit to our treatment.

Nevertheless, as I have said, in certain localities the knife is the most appropriate, and in a few the only applicable method of treatment. Thus, where the skin is very loose and abundant, as upon the scrotum, so large an amount of tissue can be readily removed that return of the malignant growth is very unlikely. At the muco-cutaneous orifices also the treatment to be recommended below for the vast majority of skin cancers cannot always be used; either on account of the liability of absorption of the poisonous drugs employed, or because of the vicinity of important

organs which may be injured. Such is the case on the free border of the lips, and on the eyelids.

The non-surgical methods consist essentially of the use of irritants strong enough to cause necrotic inflammation of the cancerous elements. Neoplastic growths are well known to have feebler powers of resistance to injuries than have the normal tissues. The theory of the use of these measures depends upon their power to excite a degree of inflammation in the whole tissue of sufficient intensity to cause necrobiosis of the new cells, whilst the hardier normal tissues undergo an inflammation from which they can recover. Such a selective action undoubtedly does occur when tissues, composed partly of normal and partly of immature tissue, are exposed to agents that injure them or even only depress their nutrition.

It is of vital importance, naturally, that the agent selected to cause the inflammation, should be sufficiently violent in action and extensive in effect to cause the death of the whole or a large part of the cancerous cells. A less violent action destroys only a few superficial cells, and excites in the neighboring tissues a mild degree of inflammatory action which favors the extension of the cancerous growth. Marked inflammatory reaction of the surrounding normal cells effectually destroys all outlying processes and cell nests; and its action is seen in the size and extent of the loss of tissue after an appropriate application, which is always far greater than the apparent external area of the disease. On the other hand, however, the action of the agent must not be so severe as to entirely

destroy the tissues, normal and abnormal together. This would have the same effect as ablation or excision, and would defeat the very selective action which the use of the agent is designed to effect.

It is the non-fulfilment of these requirements that has led to the very general disrepute into which the non-surgical treatment has fallen, and has caused a very appropriate and effective method to fall largely into the hands of irregular practitioners. In running over the various applications used, I shall mention several briefly as unworthy of reliance for the cure of carcinoma of the skin.

Passing now in review the various local measures, other than the knife, employed for the radical removal of carcinomatous neoplasms of the skin, we find some which, though insufficient of themselves, are nevertheless useful as preparatory to the application of more far-reaching remedies. Chief of these is:

1. *The Sharp Curette.*—Curetting is the favorite local treatment with many continental dermatologists; but it has been largely abandoned here on account of the impossibility of removing all the cancerous growth by its means. Besides this, the mechanical injury that the process entails both to the healthy tissues and the disease elements that remain behind is not sufficiently severe to cause the death of the pathological tissues. It seems rather to stimulate them to more vigorous growth. It is useful, however, in its place. Large portions of softened, hypertrophic, and partly broken down neoplastic matter can be curetted away with ease, and with the causation of comparatively

little pain. The resistant surface epithelium and crusted and hardened masses can be removed at once, so as to permit further applications to the deeper-seated pathological elements. A vigorous curetting under a local cocaine or eucaine anæsthesia destroys, at one stroke much diseased tissue, facilitates the action of the caustics to be subsequently employed, and greatly shortens the time required for cure. I employ it almost invariably as a preparatory measure.

2. *The Thermo-or Galvano-Cautery.*—This, in the first place, is useful, like the curette, as a preparatory measure; more especially in the form of the galvano-caustic loop in the hypertrophic and papillary forms of skin cancer. Much diseased tissue can be quickly ablated. Over and above this, however, it may be the method of election for the cure of growths situated in places where there is danger of absorption of poisonous caustics by the mucous membranes, or of injury to important organs by the inflammatory reaction they necessarily cause. Such is the case with carcinomatous growths in the mucous membranes, or those situated near the margins of the lips or the ocular canthi. The pain caused by the galvano-caustic point is comparatively small and evanescent, and a good scar is usually left when the resultant eschar falls off. The method is open, however, to the same objections that apply to the knife and the curette. The operator has absolutely no means of judging how far or how deeply the cauterization should extend. It is not surprising that recurrences are frequent under this form of treatment.

3. *Electrolysis.* This has been recommended by Inglis Parsons and others, and I have used it successfully in small growths situated near the eye and upon the mucosæ. A galvanic current, as strong as the patient can bear, must be employed. A needle attached to the negative pole of the battery, is plunged through the base of the tumor, the positive pole electrode being held in the patient's hand or applied to an indifferent portion of the body. A vigorous bubbling around the needle, at the point where it enters the skin, shows that the current is acting properly. After a few minutes the current is shut off, the needle withdrawn, the base of the tumor transfixed in another direction, and the process repeated. Thus the growth is cauterized through its base in various directions, and its blood supply is cut off. The cancerous nodule swells up, and turns white from the presence of the gases of decomposition in the superficial tissues. In a few days it turns black, and drops off. I have employed this method in a few cases of nodular and flat epitheliomata; but I have not been able to follow up any one of them for a sufficiently long time to find out if recurrence took place. It would not be surprising if it did, for the objection to the ordinary surgical treatmenr of these growths applies to it also. The use of electricity otherwise than as a cauterizing agent, has proven entirely inefficacious.

4. *The Serum Treatment.* The toxins of erysipelas and bacillus prodigiosus have been used by Coley, Moore, and others in cases of carcinoma of the skin that were inoperable on account of their location or

of the depth of tissue involved. Happel has employed them in epitheliomata of the face. The local and general reaction has been marked; but the effects of the injections were very doubtful. The results so far obtained certainly do not warrant us in experimenting with these toxins in cases of cutaneous cancer.

5. *The Anilines.* The use of blue pyoctanin and methyl blue have been recommended by Von Mosetig-Moorhof, Darier, Willy Meyer, Boldt, and others in inoperable carcinomata, and Du Castel, Dubarry and Stack have used them in the more superficial forms, but only with palliative results. Wolff claims to have cured a case by this means. It certainly cannot be recommended for cases that can be treated by other and more radical measures. It may find a field of usefulness in advanced cases. After the removal of the looser, readily disconnected tissues with the curette or the galvano-cautery in the more superficial forms, the ulceration may be cocainised and the following applied:

℞

Methylin blue..... ..15 grains
Alcohol, } aa..... 75 minims
Glycerine, }

followed by a collodion dressing.

In the deeper-seated forms the aniline dyes can be employed hypodermically in the form of a 2 to 10 per cent. solution in distilled water. The exact amount injected does not seem important; but it should be done freely, 1 to 2 c. cm. being the usual quantity. The injections into the cancerous mass should, of course, be done with strict antiseptic precautions. The needles

should be long, straight, or curved, and not of too small a calibre. The application of pyoctanin in powder or pencil form to the surface of the growth is also useful. It is too soon to form a decisive opinion as to the value of this method of treatment; but it seems to relieve pain, and to have at least a deterrent effect upon the progress of the neoplastic growth.

6. *Interstitial Alcohol Injections.* The injection of 30-50 per cent. alcohol for the cure of carcinoma was proposed long ago by Schwalbe and Hasse, and it has been employed by Kuh and others in carcinomata of the naso-pharynx and other mucous surfaces. The local action of the alcohol seems to promote the formation of cicatricial tissue. The injections should be made once or twice weekly. The method is still sub judice; but the reports are certainly hopeful enough to warrant us in trying it in suitable cases.

Much more important than all these measures, which are all either of doubtful efficacy, or useful as palliatives in hopeless cases, or employed as preparatory to more radical treatment, are the caustics. A long list of these has been used and recommended. One or two of them are the very best remedies at our disposal for the cure of cutaneous carcinomata; most of them are valuable under certain conditions; and one or two of the list are entirely useless.

7. *The Nitrate of Silver.* This is mentioned only to condemn it. Its action is so superficial that it hardly deserves the name of caustic at all. It causes coagulation of the albuminous elements in the superficial layer of cells upon which it first acts; and the

albuminate of silver thus formed stops all further caustic action. It is in fact, even in its pure form, rather a stimulant than a caustic, and is a most efficient agent to do the thing that we least desire, stimulate the epithelial growth. Incalculable damage has been done to patients suffering from cutaneous cancer, and innumerable superficial cases have been hurried on to more rapid and more malignant growth by being repeatedly "touched up" with this so-called caustic.

8. *Salicylic Acid.* The action of this drug is hardly cauterisant, but it finds a place in the treatment of cancer in preparing the tissues for other agents. It causes softening, swelling, and finally removal of the superficial epithelium. In powder, either pure or mixed with varying proportions of starch, or as a strong ointment, it can be employed with advantage for that purpose.

9. *Lactic Acid* in paste form has lately been highly recommended by Bloom, who has used it in a considerable number of cases of carcinoma of the skin with good results. It is a feeble caustic, and does not attack normal tissues at all. I have had no experience with it myself, but I should feel afraid that its feebly irritant and caustic action would place it in the same dangerous category with nitrate of silver.

10. *Acetic and Trichloracetic Acids.* These acids have neither the cauterisant power nor the irritant action required, and are of little or no use in the treatment of carcinoma.

11. *Sulphuric Acid.* This is an active and power-

ful caustic. But it is very painful, and its action spreads quickly to surrounding tissues. It destroys healthy as well as diseased structures, and hence it is but little used.

12. *Nitric Acid.* This is a much better caustic than the sulphuric acid, being quite effective and limited in its action, and causing comparatively little pain. It may be used in the most superficial forms of carcinoma of the skin, as in rodent ulcer. It should be applied to the surface with a glass rod.

13. *Pyrogalloll.* Pyrogallic acid, first recommended by Jarisch and Kaposi, has been much used in the treatment of rodent ulcer and the more superficial forms of epithelioma, and with a considerable amount of success. It may be employed as a powder, or be made up into an ointment with one to four parts of lard. It is to be dusted thickly over the part, and covered with an occlusive dressing; or the ointment is spread upon muslin. A preparatory curetting is always useful. The application may remain in place a week or more. It causes little pain, a quality that gives it a decided advantage over the other caustic methods. Sound tissues are not attacked by the pyrogallol, and to a certain extent it does exert the selective action that renders so advantageous the use of the cauterising agents to be mentioned later on. Bulkley, indeed, has found it too superficial in its action. For women, and for very sensitive and very old individuals of either sex, more especially for the lighter and slower forms of cutaneous carcinoma, it certainly possesses advantages.

14. *Chloride of Zinc.* This has been extensively employed in the treatment of epithelioma of the skin either as a stick, or powdered, or made up into a paste with flour. It is effective, but very painful. It forms an aseptic slough, and there is little liability to hemorrhage or constitutional poisoning from its use. In certain locations, as upon the mucosæ, its use in the shape of a pointed stick to be bored into the cancerous tissues is advisable. In Paget's disease of the nipple Crocker recommends the following to be applied on compresses:

℞

Zinc. chlorid	1 part.
Liq. opii sedat	"
Amyli	"
Aquæ	2 parts.

15. *Caustic Potash.* This is one of the most effective and far reaching cauterisants we can employ; its action extends far into the healthy tissues, which it liquefies and thoroughly destroys. It may be used in the form of potassa fusa, in the shape of a pointed stick that is bored repeatedly into the cancerous and surrounding tissues, or as a strong solution applied by means of a pointed glass rod. Its energetic action even upon the healthy tissues is a disadvantage, but the operator can readily feel the greater resistance of these to the glass point as compared with that of the new elements. A dilute acid, as the acetic, should be applied immediately after its use. Hubbard has lately recorded good results from the hypodermic injection of liquor potassæ in drop doses into epithelio-

mata of the oral mucous membrane. A slough forms, which, when it clears off, leaves a clean and healthy ulceration behind that readily heals. The pain caused by potash causterisation is not very great or of very long duration. It is a valuable agent, more especially in carcinomata of the mucous surfaces.

16. *Arsenic.* This is the caustic par excellence in all cases of cutaneous carcinomata in which treatment with an agent of that kind is applicable; and the limits of its applicability depend greatly upon our familiarity with its action. More than any of the other caustics it seems to possess that selective action that is a desideratum in an agent of this kind. Properly employed, it seems to excite just that degree of inflammation needed for the destruction of the neoplastic tissues; and I have yet to see any case in which it did any permanent damage to healthy tissues or to the organism at large. I have never seen absorption and arsenical poisoning occur, though I have used it in epitheliomata many square inches in size, and encroaching upon the eyebrows and the free borders of the lips. It leaves a peculiarly thin, skin-like and inconspicuous scar. The deformity after its use for the cure of carcinoma is very slight even in extensive cases; and in the case of small cancerous growths it is sometimes difficult to find the site of the tumor a year after its removal. The certainty of its action is very great. Repeated applications may be needful at the time of removal; but I have yet to see a case of return in situ in epithelioma and rodent ulcer after its proper employment. The pain that its use occa-

sions is moderately severe only, and can usually be readily borne. It is the caustic to be used in all cases save those covered by the special indications mentioned above.

Curetting should always precede its use, as arsenious acid does not act well upon unbroken integument, and much tedious caustic destruction can be thus avoided. In extensive ulcerations a part of the lesions only, some three to four square inches, should be treated at one time; not on account of the danger of absorption, which the intense inflammatory reaction effectually prevents, but to keep the pain and swelling within bounds. And since the cancerous growth, as we have mentioned above, extends far beyond the apparent limits of the tumor, the arsenical application should cover an area extending at least three-quarters of an inch beyond its borders. Upon two points the patient should be warned before the application is made. More or less œdema of all the surrounding tissues will occur; if the face is the part treated, there will be considerable redness and swelling, and the eyes may be entirely closed. This is, however, of no importance; the eye is never damaged, and the swelling subsides of itself in a day or two. Also, the ulceration that is left after the slough falls off will be very much greater than the original tumor. There is no reason to fear, however, that any healthy tissue will be destroyed.

The powdered arsenious acid is most commonly applied in the form of a paste, various formulæ for which are in use. The best known is that of Mars-

den, which consists of powdered gum acacia and arsenious acid made into a thick paste with water. As a general rule two parts of arsenic to one of the gum are employed; but in some sensitive patients, and on some specially sensitive places (lip, etc.), a smaller proportion of arsenic, one to one of the powdered gum must be employed. The paste should be made fresh, spread upon a piece of rubber plaster, and applied as soon as the oozing of blood from the curetting has ceased. It is allowed to remain in situ for from eighteen to thirty-six hours, or as long as the patient can stand the pain. A small quantity of morphia added to the paste tends to mitigate the suffering; and once in a while it is necessary to give the patient a morphia injection at night to ensure sleep while the application is acting. When the plaster is removed the neoplastic tissue will be found to be black and necrosed, and surrounded by a swollen and inflamed area of tissue. Lips, ears and eyelids, if near the area treated, will be considerably swollen. A flaxseed poultice is then applied until the slough separates.

The subsequent treatment depends upon the condition then found. If all the visible cancerous tissue is not necrosed, if any part of the hard nodular border or base of the ulcer remains unaffected, the process of cauterization must be repeated, a weaker paste being applied for a shorter time to the inflamed and damaged tissues. If, however, so far as is evident, all the diseased tissue has been destroyed, the lesion should be permitted to heal. The resultant ulcer in a suc-

cessful case is clean and healthy looking, and no induration other than the inflammatory one is present. It may be kept dressed with a simple ointment until it heals.

Other arsenical pastes are those of Cosmé, Esmarch, and Bougard. Cosmé's paste, as modified by Hebra, consists of:

℞
Acid. arseniosi ..... 1 part
Hydrarg. sulphuret. rub. ..... 5 parts
Ungt. aq. rosæ ..... 40 parts

It is applied like that of Marsden, but, being weaker, should be removed every twenty-four hours, the parts washed, and reapplied. I do not consider the formula as desirable as that of Marsden. Its weakness causes danger of its absorption, and it does not cause the requisite inflammatory reaction.

Esmarch recommends the following paste:

℞
Acid. arseniosi ..... 1 part
Morph. Sulphat ..... "
Calomel ..... 8 parts
Pulv. acac ..... 48 "

It is open to the same objections as the paste of Cosmé, and is but little used in this country.

Bougard's paste is active enough, but it must be used with caution, as it is liable to destroy the healthy as well as the pathological tissue. Its formula is as follows:

℞

Hydrarg. chlor. corr.		1 part
Acid. arseniosi		2 parts
Hydrarg. sulphuret. rubr		
Ammon. mur	aa	10 "
Farini trit	aa	120 "
Amyli		
Zinci chlorid. cryst.		

The various ingredients should be powdered separately, mixed in a mortar, and poured into the solution of chloride of zinc with rapid stirring to prevent lumping. The paste is applied on a cloth immediately after the preliminary curetting, and is allowed to remain on for twenty-four hours. The poulticing and after treatment is similar to that after Marsden's paste.

A mixture of arsenious acid with alcohol and water has been used with great success by Cerny and Trunecek. The formula is as follows:

℞

Acid. arseniosi		1 part
Spts. vini rect	aa	75 parts
Aq. destill.		

After a preliminary curetting, or at least a thorough cleansing of the surface of the ulcer, the arsenical mixture, well shaken, is spread over it with a brush. It is allowed to dry on and the part is left without any dressing. Next day the ulcer is found covered with a scab. Every day a new layer of the application is painted on, and the crust, gradually thickening, slowly changes in color from yellow through brown to black. The strength of the solution should be gradually increased during the later applications,

until the proportion of arsenic in the mixture is 1 to 100 or even 1 to 80. The scab, composed of necrotic cancerous tissue, gradually becomes detached by suppuration, and can finally be readily removed. The arsenical mixture is again applied and the result watched. If a thin, easily detachable, yellow pellicle only is formed, it is claimed that the cancerous matter is all destroyed and the ulcer will heal up. If, however, a dark colored, tough, and firmly adherent crust appears, the reverse is the case, and the entire course of treatment must be repeated.

Treatment lasts from four weeks to three months. Objections to the method are the length of time required, and the fact that daily applications are necessary. Advantages are its comparative painlessness, the possibility of treating large areas of cancerous tissue at once, and more especially its applicability to carcinomata of the skin involving the mucosæ, or situated upon the mucous membranes themselves. Its authors claim that the treatment does not affect the organism even when employed in the mouth.

Finally, Hue has used arsenious acid hypodermically, employing the following formula:

℞

Acid. arseniosi.	1 part.
Cocain. hydrochlor.....	5 parts.
Aq. destil. bull..... 500	"

Several cubic centimeters are to be injected every three or four days into the cancerous tissue; it is claimed that the operation is not painful. Though his recoveries were only called "relative," and his

cases all inoperable ones, the hypodermic injection of arsenious acid may be found useful in cases of cancer situated upon the mucous surfaces or in localities where the applications above mentioned cannot be used.

RESUME.

1. Cutaneous carcinoma is preferably treated, in the great majority of cases, by caustics, which give the best results with the least liability to return.

2. Excision is to be reserved for those exceptional cases in which, from location or extent, the caustic treatment is inapplicable.

3. Arsenious acid is the safest, surest, and best of the caustics at our disposal, and seems to have a specific selective action upon the cells of the new growth. Pyrogallol may be employed in the most superficial cases.

4. In cases involving the skin alone, arsenic should be used, after curetting, in the form of Marsden's paste.

5. Where the mucosæ are also or solely affected, arsenic can be used by the method of interstitial injection of Hue, or as a paint, as recommended by Cerny and Trunecek. The galvanocaustic point, the caustic potash stick, and the chloride of zinc may also be employed.

6. Cutaneous carcinoma, early and vigorously treated by the caustic method, is a very manageable disease, and of good prognosis.

CHAPTER VII.

Illustrative Cases.

Despite the fact that cancer of the skin is an affection of not very uncommon occurrence, complete records of cases that have been followed up for a sufficient length of time to enable us to form a definite judgment of the ultimate results of treatment are comparatively rare. The visible excrescence can be removed, and the ulceration can be healed by a variety of means; but that does not necessarily imply that the cancer has been cured. For reasons explained in a previous chapter, the cure in many cases is only an apparent one, and the disease reappears in the scar. The excessively slow growth of many of these tumors renders it necessary for a long period to elapse before we are in a position to say whether the procedures that we have employed have been successful or not. Such prolonged observation is not often possible, even in private practice; most cases are not seen after definite cicatrization has been obtained. In public practice, in dispensary and hospital work, it is the rule for the patients to disappear as soon as their trouble is relieved, though they may have been instructed to report again. This is not to be wondered at in a clientele so careless and ignorant; it occurs almost uniformly in our syphilis cases, though an appreciation

application was good, a seven day's one was better. She had not suffered much pain, had been able to sleep at night, and had only the day before removed the hardened application from the inflamed skin by soaking it with water. There was quite an extensive inflammatory induration of the tissues of the back of the neck, due to the long continued contact of the arsenic with the integument. The site of the tumor and surrounding infiltration was occupied by a circular, insensitive black mass of necrotic tissue one and three-fourth inches in diameter, considerably larger than the original fungous mass. There had been no systemic reaction, nor any evidences of arsenical intoxication. She was ordered to apply flaxseed poultices.

February 4, 1894. The thick black slough had become partly detached, and it was evident that the entire thickness of the skin down to the subcutanea of the affected area had been destroyed. The dead tissue was surrounded by a distinct suppurating line of demarkation. The induration of the tissues of the neck had disappeared, and the inflammatory reaction was limited to the immediate neighborhood of the diseased tissues. A wet boric acid dressing was applied.

February 11, 1894. The entire necrotic mass was loose, and I removed it with the forceps. The wet dressing was continued.

February 15, 1894. The ulcer had diminished in size, but was still very deep. As the granulations seemed sluggish they were touched with the nitrate of *silver stick*.

FIG. 1.
Papillary Epithelioma of the Forehead ; from Photograph by the Author.

FIG. 2.
Tubercular Ulcerating Epithelioma of the Ear ; from Cast by *the Author.*

February 20, 1894. The granulations were level with the surface; boric acid ointment applied.

February 26, 1894. Cicatrization completed.

March 28, 1894. The patient reported, as ordered. The scar was smooth, and there was no trace of induration anywhere in it. She was advised to have a number of senile warts which were on her face removed, on account of the marked tendency in her case to the occurrence of cancerous degeneration. This she refused.

June 12, 1898. The patient reappeared at the clinic. The scars marking the sites of the tumors removed four and five years before were inconspicuous, soft and perfectly smooth. She now has a fungating epithelioma the size of a small nut in the centre of her forehead, and a superficial cancerous infiltration, a rodent ulcer 1½x1 inch in a size, on the right cheek, just in front of the tragus. I propose to induce local cocaine anæsthesia by cataphoresis, curette, and reapply the arsenical paste.

Case 2. Large papillary and tubercular epitheliomata of the forehead and face; curettement and arsenical paste; no return in six years.—T. S., male, 53 years old. June 10, 1891. Three years before, in 1888, had first noticed an insignificant little scab upon his forehead, and had picked it off. The scab reappeared and continued to do so as often as he removed it, and it apparently got larger each time. Then there appeared a small ulceration under the scab, and, though it gave him no trouble save from the annoyance of its presence, he consulted a physician in the

Southern town in which he lived. Since that time he has been under continuous treatment, with various practitioners. The ulcer, small as a French pea at the beginning, has been repeatedly cauterised with sulphuric and nitric acids, bluestone and lunar caustic; it has been treated with various salves; with the result that it had gotten steadily larger and larger, until it occupies nearly one half his forehead. Some weeks before he gave up his physicians in despair, and had been using a number of advertised cancer remedies since then. The rapid increase of the ulceration of late had so alarmed him that he had come North to consult a specialist.

His condition was as follows: Almost the whole of the left half of the skin covering the forehead was occupied by an extensive ulceration consisting of two irregularly circular and confluent areas. The larger outer area was covered with a moist, reddish brown, hypertrophic fungoid growth, the inner smaller one was a dry, glazed ulceration. The diseased area measured 3½x2 inches, and extended from very near the roots of the hair to the eyebrows. The margins and base of the growth were very hard, tumefied, waxy, and vascularised.

On account of the large size of the growth it was treated in two sections, but in the same way, and with the same result. The outer half was taken first, thoroughly curetted under cocaine anæsthesia, and Marsden's paste applied. The patient was of a nervous excitable temperament, and quite sensitive to pain, so that it was necessary te give him a hypoder-

mic injection of morphia to procure sleep at night while the paste was applied. Four applications, two to each portion of the ulceration, were made, each being allowed to remain on for twenty-four hours. Finally the entire ulcerated area, together with the indurated margins and a considerable area of apparently healthy tissue, was changed into a dark slough. There was, of course, marked œdema of the eyelid and the side of the face, but the inflammatory reaction was not excessive. The parts were poulticed until the sloughs came away, and then dressed with a wet boric acid compress. The actual caustic treatment occupied ten days, with the intervals, and the resultant loss of tissue, which was quite great, took some time to fill up. Grafting or transplantation would certainly have been required if excision had been done.

July 18, 1891. The forehead had entirely healed, the scar looked perfectly healthy, and the patient was permitted to go home.

I saw him at least once a year thereafter, when he came North. The scar became whiter, but did not otherwise change, it finally became unrecognizable a short distance away. In 1894 I removed a small cancerous nodule from his cheek, in the same manner as that employed for the larger growth. He died of Bright's disease in 1897, and there had been absolutely no return of the disease in the six years that had elapsed since I destroyed it.

Case 3. *Tubercular infiltrating epithelioma of the forehead; arsenical paste, twice repeated; no return*

in one and a half years.—W. D. female, aged 55 years. June 6, 1886. Patient showed an epithelioma the size of a silver half dollar upon the forehead, forming a red, shiny looking ulceration, with an irregular, hard, infiltrated margin and base of characteristic feel and appearance. No special history was obtainable, the lesion had been present for a long time, pained a little and itched sometimes, but was regarded by the patient as a trifle, obnoxious only from a cosmetic point of view. Two applications of the arsenical paste were made on two successive days, each was kept on for twelve hours during the daytime, a carbolized zinc ointment being used at night.

June 9, 1886. The neoplastic tissue was apparently all necrosed. The pain had been moderate. Ordered poultices.

June 13, 1886. Slough was detached; ulceration looked healthy, save along its upper border, where it appeared waxy and swollen, as if some epithelial infiltration had been still left there. Patient also complained of pain in that margin.

June 19, 1886. Ulceration closing up nicely under boric acid ointment. There was a suspicious papillomatous spot in the upper margin of the scar.

June 25, 1886. Ulceration closed; told to await developments and report in three weeks.

August 16, 1886. The cancerous tumor had reappeared in the upper margin of the scar. The paste was reapplied, and allowed to remain on for twenty-four hours. The upper infiltrated margin of the scar only broke down.

FIG. 3.

Fungating Epithelioma of the Penis; from Photograph by the Author.

FIG. 4.

Superficial Epithelioma (Rodent Ulcer); from Photograph by the *Author.*

September 10, 1886. The wound had entirely healed, with a smooth and soft scar.

December 2, 1887. Saw the patient as she came to the clinic for some other trouble, the scar was perfectly normal, and there had been no return of the disease.

Case 4. *Papillary epithelioma of the hand; arsenical paste twice; no return in three years.*—A. A., female, aged 65.—February 2, 1888. Patient had a papillomatous excrescence on the back of her right hand, covering the sulcus between the first and second fingers and the adjacent skin, and the size of a large walnut. This began as a small sore two or three years before, but had never troubled her until recently. It was now growing larger, and interfered with her in her work. The hypertrophic portion of the mass was ablated, pressure applied to stop the hemorrhage, and then the arsenical paste was put on.

February 4, 1888. The paste was now removed. There was a large slough, extending on to the knuckles of the first and second fingers, and on to the backs of the fingers themselves. A poultice was ordered.

February 6, 1888. The slough was loose, and was removed with the dressing forceps. Some induration was left, so the paste and poultice were reapplied.

February 17, 1888. A deep excavation was now present, and apparently all the cancerous tissue had been destroyed. The cell processes evidently extended far beyond the external apparent limits of the disease.

March 14, 1888. The wound had entirely closed,

and the scar was satisfactory. No nodule or induration was present anywhere.

December 10, 1890. Had seen the patient several times during the intervening time; the scar was in perfect condition; there had been no return of the disease.

Case 5. *Papillary and infiltrating epithelioma of the forehead; curetting; pyrogallol; return of disease in the scar in five months.*—A. V., female, 60 years old. March 25, 1891. One year ago had noticed a pimple on the right temple, which grew slowly, but gave her no pain. Nevertheless, she had been anxious to get rid of it, employing her finger nail, caustic (?), and various other "recommended" things for the purpose. The only result has of course been to stimulate its growth. On the right side of the forehead was a dry, cauliflower-like mass, about the size of a filbert, seated on a hard and indurated base. The protuberant mass was curetted away, and a thirty-three per cent. pyrogallol ointment applied, and, with renewals, kept on a week. The patient hardly complained of any pain at all, the application contrasting very favorably in this respect with the arsenic paste.

April 15, 1891. There was a clean, healthy looking ulcer in the place of the epithelioma. A dressing of powdered boric acid and zinc oxide, equal parts, was applied.

June 10, 1891. The result was apparently excellent; cicatrization was perfect, there was no trace of induration visible; the patient was ordered to report monthly.

FIG. 5.
Necrosis of Cancerous Tissue after the Application of the Arsenical Paste ; from Photograph by the Author. (See Case 1.)

FIG. 6
Extrusion of the Necrotic Mass of Cancerous Tissue ; from *Photograph by* the Author. (See Case 1.)

August 21, 1891. The scar now began to look suspicious, portions of the margins were swollen and fairly hard to the touch, and the underlying tissues were apparently indurated.

September 11, 1891. The entire scar was swollen and infiltrated, and in one place superficial ulceration had just begun. I intended to return to the attack, using a different plan of treatment, but the patient evidently thought that once was enough, and she disappeared.

Case 6. *Rodent ulcer of the nose; pyrogallol; return of disease in three months; nitric acid; no result; potassa fusa; no return in two months.*—H. M., 45 years old. June 12, 1892. This patient has had a scab for six years upon the bridge of her nose, caused, she believed, by the bow of her spectacles. She had never thought anything of it until lately, when it began to get sore and annoy her. Examination revealed a large, bean-sized, superficial epithelioma, a rodent ulcer, seated like a saddle upon the bridge of her nose. A thirty-three per cent. pyrogallol ointment was applied, without causing much pain, and with an apparently excellent result. The induration melted down under the salve, the base of the ulcer cleaned and the lesion began to heal.

July 6, 1892. The patient being apparently cured, I discharged her, but told her to report regularly.

September 14, 1892. Induration had reappeared in the superficial scar. Nitric acid was then applied by means of a glass rod repeatedly.

September 29, 1892. The results had not been en-

couraging; the action of the nitric acid seemed to be too superficial. I then employed potassa fusa in the shape of a pointed stick, going deeply down into the infiltrated skin in all directions, and neutralising with dilute citric acid immediately afterwards. Then a boric acid ointment. This was done twice a week.

November 1, 1892. The carcinoma was apparently cured, the surface of the scar on the nose being smooth and non-infiltrated. She was ordered to report from time to time, but I then lost sight of her.

Case 7. Papillary epithelioma of the forearm; nitric acid; return in eight weeks; arsenical paste; apparent cure.—M. C., female, aged 64. April 4, 1894. Had had for many years a small excrescence on the anterior surface of the left forearm, which has grown very slowly until it has attained its present size. There was now a fungating mass 2x1 inch in diameter on the outer surface of the left forearm, a typical cauliflower epithelioma, with its interstices filled with a foul smelling, purulent secretion, and with waxy and infiltrated margins and base. The treatment employed was ablation of the protuberant portion of the growth, and cauterisation of its base, which was thoroughly dug into with a pointed glass rod dipped in nitric acid. This was followed by a poultice until the slough was detached, and then a dressing of carbolised zinc oxide ointment was applied.

May 6, 1894. The ulceration was nearly healed, but parts of the margins still looked waxy and infiltrated. Nitric acid was thoroughly applied again.

FIG. 7.
Resultant Scar (Figs. 5 & 6) Four Years After Removal; from Photograph by the Author. (See Case 1.)

FIG. 8.
Resultant Scar (Figs. 5 & 6) Five Years After Removal; from Photograph by the Author. (See Case 1.)

June 10, 1894. There were some waxy papules still in the scar, nitric acid was used again.

September 3, 1894. Undoubted return in the scar; nitric acid applied again.

October 2, 1894. Recourse was now had to Marsden's paste, which was applied after the removal of the superficial epidermis with the sharp curette. The result was an apparent cure, but I was unable to follow up the case further.

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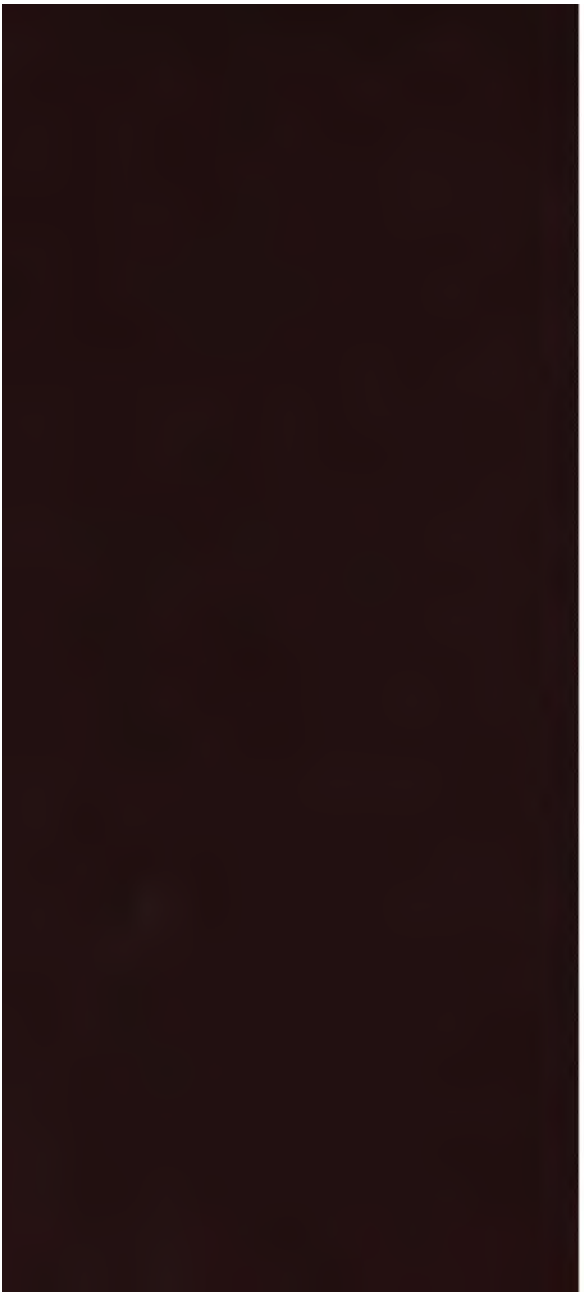
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